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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,932	12/02/2003	Folkert Horst	04518/0200619-US0	7001

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EXAMINER	
TAYLOR, BARRY W	
ART UNIT	**PAPER NUMBER**
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/727,932	HORST ET AL.	
	Examiner	Art Unit	
	Barry W. Taylor	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-27 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-27 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 02 December 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 3/10/04 12/2/03.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 14-19 are objected to because of the following informalities. Dependent claim 14 does not make sense. The claim language "from a transmitter a media signal" does not make sense. It appears the claim language should read "a transmitted media signal". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-18 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitfield et al (6,135,396 hereinafter Whitfield) in view of Peltz et al (6,862,502 hereinafter Peltz).

Regarding claim 1. Whitfield teaches a network entity (abstract, see Central Control Station item 200 figure 3) for remotely controlling a plurality of locomotive entities, comprising:

a) a communication layer (see central control station item 200 figure 3) for communicating simultaneously with the remote control (see hand held remote controller item 520 figure 3, col. 9 line 54 – col. 10 line 7) and the locomotive onboard computer (item 510 figure 3)

b) an intelligence layer (see central control station item 200 figure 3) for processing data derived from signals received from the remote controller (see hand held remote controller item 520 figure 3, col. 9 line 54 – col. 10 line 7).

Whitfield does not explicitly show a set of RF communication links with respective remote transmitters and respective locomotive entities.

Peltz teaches an intelligent communications, command and control system for at least one transceiver remote from the locomotive (abstract). Peltz teaches TDMA or Spread Spectrum communications is used to allow locomotives and remote transceivers the ability to select different communications links (i.e. satellite or cell phone providers) and/or control modes (col. 3 lines 34-47, col. 3 line 66 – col. 4 line 49, col. 5 lines 29-32, col. 8 lines 16-20, col. 8 lines 34-36). Peltz teaches the system can sense when environment or the communication media is degrading and automatically switch to a

different communication media (col. 9 lines 12-25 and col. 10 lines 28-43 wherein system chooses between RF and optical. For example, if it is snowing or raining switch to RF mode and if clear weather switch to optical) or change communication protocol (see col. 10 line 44 – col. 12 line 1 wherein system switches to TDMA or FDMA when system becomes crowded or in an area where many remotes are in close proximity). Peltz also teaches that TDMA can also be used to allocate a discrete amount of frequency bandwidth to each user thereby allowing for simultaneous transmissions to occur (col. 10 line 65 – col. 11 line 7). Peltz also teaches using spread spectrum to provide increased channel capacity and efficient bandwidth usage, as well as, minimizing interference --- col. 11 lines 8-67).

It would have been obvious for any one of ordinary skill in the art at the time of invention to modify the central control station as taught by Whitfield to use TDMA or spread spectrum as taught by Peltz so that the central control station can communicate to more than one remote simultaneously as taught by Peltz.

Regarding claim 2. Whitfield teaches wherein said intelligence layer is operative to process a command contained in a signal received from a first transmitter and destined to a first locomotive entity to produce a modified command (see figure 3, col. 9 line 44 – col. 10 line 7 wherein hand held remote control 520 sends request to central control station 200 the desire to control locomotive 500 and control station sends change mode command (i.e. modified command) to the locomotive to operate in remote control mode).

Regarding claim 3. Whitfield teaches wherein said intelligence layer is operative to transmit the modified command to said communication layer such that said communication layer can send a signal containing the modified command to the first locomotive entity (see figure 3, col. 9 line 44 – col. 10 line 7 wherein hand held remote control 520 sends request to central control station 200 the desire to control locomotive 500 and control station sends change mode command (i.e. modified command) to the locomotive to operate in remote control mode).

Regarding claim 4. Whitfield teaches wherein said intelligence layer is operative to produce a modified command at least partially on the basis of information other than information conveyed in the signal received from the first transmitter (see figure 3 and col. 10 lines 3-8 wherein the central control system 200 continuously monitors the locomotive 500 and remote hand held unit 520 and if unsafe condition is detected the central stations sends an emergency braking command to the locomotive which reads on "a modified command at least partially on the basis of information other than information conveyed in the signal received from the first transmitter").

Regarding claims 5-6. Whitfield does not explicitly show more than one remote hand held controller (see item 520 figure 3).

Peltz teaches an intelligent communications, command and control system for at least one transceiver remote from the locomotive (abstract). Peltz teaches TDMA or Spread Spectrum communications is used to allow locomotives and remote transceivers the ability to select different communications links (i.e. satellite or cell phone providers) and/or control modes (col. 3 lines 34-47, col. 3 line 66 – col. 4 line 49, col. 5 lines 29-32,

col. 8 lines 16-20, col. 8 lines 34-36). Peltz teaches the system can sense when environment or the communication media is degrading and automatically switch to a different communication media (col. 9 lines 12-25 and col. 10 lines 28-43 wherein system chooses between RF and optical. For example, if it is snowing or raining switch to RF mode and if clear weather switch to optical) or change communication protocol (see col. 10 line 44 – col. 12 line 1 wherein system switches to TDMA or FDMA when system becomes crowded or in an area where many remotes are in close proximity). Peltz also teaches that TDMA can also be used to allocate a discrete amount of frequency bandwidth to each user thereby allowing for simultaneous transmissions to occur (col. 10 line 65 – col. 11 line 7). Peltz also teaches using spread spectrum to provide increased channel capacity and efficient bandwidth usage, as well as, minimizing interference --- col. 11 lines 8-67).

It would have been obvious for any one of ordinary skill in the art at the time of invention to modify the central control station as taught by Whitfield to use TDMA or spread spectrum as taught by Peltz so that the central control station can communicate to more than one remote simultaneously as taught by Peltz.

Regarding claim 7. Whitfield teaches wherein the modified command directs the first locomotive to reduce speed (see col. 9 line 54 – col. 10 line 7).

Regarding claim 8. Whitfield teaches wherein the modified command directs the first locomotive to accelerate (see col. 9 line 54 – col. 10 line 7).

Regarding claim 9. Peltz teaches wherein said Communication layer is operative to create a log of events relating to operations of the plurality of locomotive entities

derived from information contained in signals sent to said communication layer via the RF communication links (see col. 5 lines 39-65 wherein locomotive information may be stored to keep track of type and ordering of rail cars and locomotives, as well as, cargo weight, speed and direction may be stored and periodically updated, and model and version of software may also be upgraded).

Regarding claim 10. Whitfield teaches wherein said intelligence layer is operative to sense the presence in a signal received by said communication layer from a transmitter, an ancillary command directed to an ancillary device distinct from any one of the locomotive entities, the ancillary device command directing the ancillary device to perform a certain action (see col. 2 lines 45-47 wherein locomotive is switched to siding track, see siding track item 106 used to move locomotive out of the way of another locomotive, see col. 5 line 37 wherein ancillary device (i.e. switch) is shown, see col. 8 lines 38-47 wherein switch positioning control commands are taught, see independent claim 1 column 12 wherein train conflicts are avoided by using central control station that monitors and controls not only locomotives but also controls switches (i.e. ancillary device). See dependent claims 6 and 7 wherein plurality of track switches controlled by central control station).

Regarding claim 11. Whitfield teaches wherein said communication layer (see central control station item 200 figures 1 and 3) communicates with the ancillary device (see switch 108 in figure 1 used to move locomotive out-of-way), said intelligence layer being operative to direct the ancillary device command to the ancillary device via said communication layer (see col. 2 lines 45-47 wherein locomotive is switched to siding

track, see siding track item 106 used to move locomotive out of the way of another locomotive, see col. 5 line 37 wherein ancillary device (i.e. switch) is shown, see col. 8 lines 38-47 wherein switch positioning control commands are taught, see independent claim 1 column 12 wherein train conflicts are avoided by using central control station that monitors and controls not only locomotives but also controls switches (i.e. ancillary device). See dependent claims 6 and 7 wherein plurality of track switches controlled by central control station).

Regarding claim12. Whitfield teaches a network entity (see central control station item 200 figures 1 and 3) wherein the intelligence layer includes an arbitration function for resolving conflicting ancillary device commands for the ancillary device sent from different transmitters via respective RF Communication links (see col. 12 lines 20-25 wherein central control station has intelligence to function as an arbitrator thereby eliminating conflicts between locomotives and track usage).

Regarding claim 13. Whitfield teaches wherein the ancillary device is a railroad switch (see railroad switch 108 in figure 1 used to move locomotive to siding track 106).

Regarding claim 14. Whitfield does not explicitly show using a media signal.

Peltz teaches an intelligent communications, command and control system for at least one transceiver remote from the locomotive (abstract). Peltz teaches TDMA or Spread Spectrum communications is used to allow locomotives and remote transceivers the ability to select different communications links (i.e. satellite or cell phone providers) and/or control modes (col. 3 lines 34-47, col. 3 line 66 – col. 4 line 49, col. 5 lines 29-32, col. 8 lines 16-20, col. 8 lines 34-36). Peltz teaches the system can sense when

environment or the communication media is degrading and automatically switch to a different communication media (col. 9 lines 12-25 and col. 10 lines 28-43 wherein system chooses between RF and optical. For example, if it is snowing or raining switch to RF mode and if clear weather switch to optical) or change communication protocol (see col. 10 line 44 – col. 12 line 1 wherein system switches to TDMA or FDMA when system becomes crowded or in an area where many remotes are in close proximity). Peltz also teaches that TDMA can also be used to allocate a discrete amount of frequency bandwidth to each user thereby allowing for simultaneous transmissions to occur (col. 10 line 65 – col. 11 line 7). Peltz also teaches using spread spectrum to provide increased channel capacity and efficient bandwidth usage, as well as, minimizing interference --- col. 11 lines 8-67). Furthermore, Peltz defines communications as data or voice (col. 1 line 38), which reads on media signal.

It would have been obvious for any one of ordinary skill in the art at the time of invention to modify the central control station as taught by Whitfield to use TDMA or spread spectrum as taught by Peltz so that the central control station can communicate to more than one remote simultaneously as taught by Peltz.

Regarding claim 15. Peltz teaches switching and passing data or voice (i.e. media signal) between first and second communication links (see col. 3 line 66 – col. 4 line 32, col. 5 lines 29-32, col. 8 lines 16-20, col. 8 lines 34-36, col. 10 lines 28-43, col. 10 line 44 – col. 11 line 61, col. 12 line 50 – col. 13 line1, col. 14 lines 51-64, col. 15 lines 17-58, col. 17 lines 38-54, col. 17 line 65 – col. 18 line 8, col. 18 lines 27-37, col. 18 line 53 – col. 19 line 4, col. 19 lines 15-27, col. 20 lines 37-67).

Regarding claim 16. Peltz teaches wherein the media signal includes address information identifying the second transmitter, said switching function switching the media signal to the second transmitter on the basis of the address information (see col. 3 line 65 – col. 4 line 10 wherein selection of specific communication devices from multiple communications devices is taught, see col. 4 lines 11-34 wherein dynamic braking control, engine settings, tractive effort commands, and other train control commands are taught, see col. 5 line 59 – col. 6 line 49 wherein software upgrades and remote programming of equipment is taught, see col. 10 line 28 – col. 11 line 48 wherein TDMA, CDMA and spread spectrum are used for communicating to more than one remote simultaneously, see col. 15 lines 32-58 wherein lead and remote units are dynamically controlled, .

Regarding claim 17. Peltz teaches wherein the media signal includes address information identifying a set of transmitters excluding the first transmitter, said switching function switching the media signal to the transmitters in the set on the basis of the address information (see col. 4 lines 4-6, col. 10 line 28 – col. 11 line 48, col. 15 lines 32-58 wherein CDMA, TDMA and spread spectrum used for communicating to specific locomotives and remote units).

Regarding claim 18. Peltz teaches wherein the media signal includes audio information (see data or voice --- col. 1 line 38).

Regarding claim 25. Whitfield teaches a network entity (abstract, see Central Control Station item 200 figure 3) for remotely controlling a plurality of locomotive entities, comprising:

a) a communication layer (see central control station item 200 figure 3) for communicating simultaneously with the remote control (see hand held remote controller item 520 figure 3, col. 9 line 54 – col. 10 line 7) and the locomotive onboard computer (item 510 figure 3)

b) an intelligence layer (see central control station item 200 figure 3) for processing data derived from signals received from the remote controller (see hand held remote controller item 520 figure 3, col. 9 line 54 – col. 10 line 7).

Whitfield does not explicitly show a set of RF communication links with respective remote transmitters and respective locomotive entities.

Peltz teaches an intelligent communications, command and control system for at least one transceiver remote from the locomotive (abstract). Peltz teaches TDMA or Spread Spectrum communications is used to allow locomotives and remote transceivers the ability to select different communications links (i.e. satellite or cell phone providers) and/or control modes (col. 3 lines 34-47, col. 3 line 66 – col. 4 line 49, col. 5 lines 29-32, col. 8 lines 16-20, col. 8 lines 34-36). Peltz teaches the system can sense when environment or the communication media is degrading and automatically switch to a different communication media (col. 9 lines 12-25 and col. 10 lines 28-43 wherein system chooses between RF and optical. For example, if it is snowing or raining switch to RF mode and if clear weather switch to optical) or change communication protocol (see col. 10 line 44 – col. 12 line 1 wherein system switches to TDMA or FDMA when system becomes crowded or in an area where many remotes are in close proximity). Peltz also teaches that TDMA can also be used to allocate a discrete amount of

frequency bandwidth to each user thereby allowing for simultaneous transmissions to occur (col. 10 line 65 – col. 11 line 7). Peltz also teaches using spread spectrum to provide increased channel capacity and efficient bandwidth usage, as well as, minimizing interference --- col. 11 lines 8-67). In summation, Peltz teaches remotely controlling specific communication devices (i.e. fist mode) and remotely upgrading software (i.e. second mode), see col. 4 lines 4-6, col. 5 lines 54-65, col. 6 lines 42-49, col. 8 lines 16-21, col. 8 lines 34-36).

It would have been obvious for any one of ordinary skill in the art at the time of invention to modify the central control station as taught by Whitfield to use TDMA or spread spectrum as taught by Peltz so that the central control station can communicate to more than one remote simultaneously as taught by Peltz.

Regarding claim 26. Peltz teaches software upgrade (col. 5 lines 54-65).

Regarding claim 27. Peltz teaches software load (col. 5 lines 54-65, col. 6 lines 42-49).

3. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Whitfield et al (6,135,396 hereinafter Whitfield) in view of Peltz et al (6,862,502 hereinafter Peltz) further in view of Hawthorne (2004/0138789).

Regarding claim 19. Whitfield in view of Peltz do not show the media signal includes video information.

Hawthorne also teaches a method and apparatus for remotely controlling locomotives (abstract). Hawthorne teaches using remote units that have a display so

persons located at ground level in a rail yard may be provided with a live representation of other vehicles and remotes in the vicinity of the rail yard (paragraphs 0016). Hawthorne teaches using cameras so the tower can receive and forward real time images to each remote units display (paragraphs 0020, 0025 – 0027) which gives a different view point since operators of the remote units are typically at ground level and are unaware of other locomotives and remote units within the vicinity of the rail yard. Hawthorne teaches the tower correlates video and other location information for various locomotives and remotes thereby insuring only one remote unit are controlling one locomotive at a time thus avoiding collisions in rail yards (paragraph 0027).

It would have been obvious for any one of ordinary skill in the art at the time of invention to modify the central control station as taught by Whitfield in view of Peltz to equip remote units with a display as taught by Hawthorne so that the central tower can correlate and send each remote unit real time information relating to other remotes and locomotives in the rail yard.

4. Claims 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitfield et al (6,135,396 hereinafter Whitfield) in view of Peltz et al (6,862,502 hereinafter Peltz) further in view of Horst et al (5,685,507 hereinafter Horst).

Regarding claims 20-24. Whitfield in view of Peltz do not explicitly show a transmitter selector being operative to reject commands issued by a transmitter to which has been assigned a non-controlling mode. However, Peltz does teach using TDMA, CDMA and spread spectrum used to allow for simultaneous communications among

users in close proximity to one another. The Examiner notes that it has already been well established in prior art to use an identifier segment that uniquely represents transmitters that are to control a locomotive.

If not, Horst which was cited by Peltz teaches using unique identifier segment that uniquely represents the transmitter that is designated to control a locomotive (col. 4 lines 24-66, col. 56 lines 35-62) which is used to ensure that the locomotive will only accept commands issued by the transmitter that is generating the proper identifier and of course reject status words from other transmitters (col. 5 lines 58-62).

It would have been obvious for any one of ordinary skill in the art at the time of invention to modify the invention as taught by Whitfield in view of Peltz to use status words as taught by Horst so each remote unit may be uniquely identified and recognized by the locomotive to ensure that only the transmitter having the unique code can command the locomotive even when other remote transmitters are operating nearby.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry W. Taylor, telephone number (571) 272-7509, who is available Monday-Thursday, 6:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost, can be reached at (571) 272-7872. The central facsimile phone number for this group is **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 2600 receptionist whose telephone number is (571) 272-2600, the 2600 Customer Service telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Centralized Delivery Policy: For patent related correspondence, hand carry deliveries must be made to the Customer Service Window (now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314), and facsimile transmissions must be sent to the central fax number **(571-273-8300).**

Barry W. Taylor
Art Unit 2617

Barry Taylor 5/30/07

BARRY TAYLOR
PRIMARY EXAMINER